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by Joseph G. Griffith

HYBRIDIZING BIRDS

## EQUIPMENT

Aviaries and cages are the mechanical means we use for containing and breeding birds. From this standpoint, the first key to breeding success is EFFICIENCY. Every cage and every aviary should be designed so that it can be serviced from the outside.

Consider the time it takes to carry a number of buckets into each aviary, opening each door, checking feed, etc. Compare this with pushing a cart down a row filling hoppers and trays as you go. Cages are even worse. You must open the door, remove the dish, close the door, fill the dish, open the door, put in the dish and finally close the door. For each dish!

Both cages and aviaries should be longer than they are high. Birds need horizontal, not vertical, exercise. Theoretically, aviaries for Zebra Finches need be no wider than ten inches. Just enough so that they don't strike their wings on the walls as they fly. In practice, three feet is about as narrow as would be convenient for most people.

The most sensible thing in aviary construction is to plan ahead. Sit down, draw up a plan of your property. Make it as elaborate as you can. If you will stick to the plan, with only minor changes, the finishes product will be all of a piece, not a hodge-podge. This will hold true even if it takes ten years to complete. Should it never be completed, what has been done will be neat and easily cared for.

All Aviaries should face either East or West. Even in sunny California, those aviaries that open to the North are excessively dark and tend to hold the cold and damp of the winter rains. Aviaries that face East will get morning and mid-day sun, those that face west will have mid-day and afternoon sun. Almost any bird will benefit from this arrangement.

Wire netting comes in 2, 3, and 4 foot widths, so it is best to work in multiples of these. The best of these, and most expensive but longest lasting, is $1 / 2 \times 1$ inch welded wire. This is adequate for everything from small finches to large parrots. Half by half inch welded wire is probably next best, but I have known Conures to chew out of it. Wire mesh is woven and soldered $1 / 2 \times 1 / 2$ inch fabric, and is usually galvanized. It's not as tough as the others and the soldered joinings tend to thicken it and limit one's view. Finally there is aviary wire which is woven hexagonal wire like chicken wire. This is the finest and least flexible of all. With it you are pretty much limited to non-chewing birds.

Ideally, the framing for aviaries should be angle iron. The expense is beyond most bird breeders budget. It is however the most durable material. Another long lasting material is half inch pipe. The chief difficulty is to get a close fit between the doors and their frames. Wire can be welded on or put on with wire loops.

The most common material for frames is wood. Clear, straight grained fir or hemlock is the best. Redwood can prove dangerous both because the resins in it are often toxic and because it contains hairlike fibers that may penetrate the digestive tract. Since wood rots and is attacked by termites, treatment with creosote is a big help. Creosote can be brushes on. At a bare minimum, it should be used on all parts that come in contact with the ground.

Aviary shelters are usually made of wood. In the Southwest and Southeast they need not be elaborate; just enough to give the birds protection from the wind and rain. In northern parts of the country, they should be more elaborate.


Figure 1. Southern Shelter


Figure 2. Northern Shelter


Figure 3. A viaries

Winter openings should be located below the halfway mark to conserve heat inside. Figures 1 and 2.

The flight may be covered or not, depending upon the needs of the breeder. Figure 3 shows a complete aviary. Note that all of the feeding is done on the aisle and that the aisle is covered with a moderate overhang. It is possible to place the feeding stations on an aisle at the back of the shelters, but I prefer to have the birds flying toward a solid wall rather than toward a wire wall where they might break their necks if they panic.

The matter of cages will depend largely on the space available and the size of the birds to be bred in them. Generally,
the larger the better. Box cages offer the birds the greatest privacy and protection. There is some concern about box cages in that they are made of wood and many people fear they harbor mites. With the joints glued and with a couple of coats of good paint, there is no reason why such cages should have more mites than any other type cages. Another objection to box cages is the bulk and weight. In a well organized bird room, this need not be a problem. A thorough cleaning is only necessary once a year and this is the only time that the cages need be moved. At this time, the entire cage should be washed and, if necessary, paint-
continued on next page

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Credit was neglected in the July/Aug issue for the photos accompanying the Red Crested Cardinal article. Steve McKinley supplied the supportive photos to Chris LaRue's article. Both men are associated with the Topeka Kansas Zoo.

Another valuable contribution slipped by unnoticed with the printing of the AFA Guide to Birds in the Classroom. Most of the photos used throughout the 32 page booklet were taken by Sharon Clause, San Diego.

AFA is very grateful to these un-sung heros who have brought photographic life to our printed pages.

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Figure 5. Front View
ed. They can then be returned to the bird room to await the next breeding season.

Figure 4 shows a plan for such a cage that is $36^{\prime \prime}$ long, 17 " high and $16^{\prime \prime}$ deep. All of the feeding can be done from the outside and the only reason to put one's hand into the cage is to check the eggs or young. Figure 5 gives a front view of the cage.

A large selection of birds can be bred in this size cage. The nest boxes for some will be open fronted and for others closed. Cockatiels, Budgies, Grass Parakeets, Canaries, Australian and some African Finches, most European Finches, Some small Thrushes, and Titmice are among the birds that can be bred in this cage.

Going back to Aviaries, a good size is 6' wide by 12 ' deep by 7' high. Seven feet may seem an odd height but experience has shown that the extra foot (to $8^{\prime}$ ) makes it difficult to catch the birds. This size aviary is more or less ideal and will accommodate almost any kind of bird. These dimensions, however, aren't an absolute must. Broadtail Parakeets are bred in Holland in aviaries $4^{\prime}$ by $6^{\prime}$ by $6^{\prime}$.

The important thing is the condition of the birds. If they are really raring to go, they will attempt to breed in a bare aviary or cage. If they are in poor condition, they won't do much regardless of any encouragement given them.

Both cages and aviaries require essentially the same equipment. Perches should be places as far apart as possible to provide the maximum exercise. They should
be of different sizes. In a cage you will have only two and the larger of them CANNOT BE TOO LARGE. Some authors claim that overgrown nails are due to perches that are to big, but the logic of the situation would suggest the reverse. A small perch gives no opportunity for wear since the nails never come in contact with it. Thick perches wear the nails as the bird lands and brings its full weight and grip to bear. Interestingly, I have noted that Canaries and some of their relatives prefer to mate on the larger perches.

Seed hoppers are almost a must in aviaries and they can be constructed in such a way that the bulk of the hoppers are on the outside of the aviaries while the trays are on the inside. They are most useful when they have a number of partitions that allow the serving of several kinds of seed. Their counterpart in cages are tube drinkers. When serving seed in tube drinkers, DO NOT seat the tube all of the way into the plastic portion; the flow of seed will be greatly reduced or stopped altogether and tragedy may result.

Dishes for an aviary should be of a size that is convenient but heavy enough so the bird' won't tip them over. For cages, small flanged cups are ideal since they permit the breeder to service the cage from outside.

In an aviary, greens can be placed on the food shelf or thrown on the ground. There is little need to worry because what isn't eaten will soon dry and aviaries
are large enough to accommodate a good deal of trash without endangering the birds. Cages are a different matter and the best practice is to use a greens holder. On the cage recommended, the door is 6" square and the greens holder is located on it. Uneaten greens do not mold in the cage, but dry in the holder.

Nests, whether open or boxtype, should be hung in the inner corners to provide the birds with a greater feeling of security. Where a wild hen is being used, two nests, preferably of different styles, should be given so that she has a choice. Domestic hens such as canaries will build in almost anything.

There are generally two kinds of successful breeders. First is the breeder who is always with the birds and to whom the birds have become so enured that they pay little attention. The second is the breeder who spends a few minutes, once or twice a day, and gets out to leave the birds to their own devices. There doesn't seem to be much room for success in between these two. If you are the former, your birds will get to the point where they will permit an incredible amount of nonsense without quitting. If you are the latter, your birds will expect you to mind your own business.

Time and again, breeders complain that their birds aren't working very well. Often the poor performance is because all of the cages or aviaries are cleaned once a week. The birds are left alone during the balance of the week and sudden-
ly they are disturbed for an hour or more. It is unreasonable to expect them to continue with anything that they've started. Provided the cages or aviaries remain dry and there is no mold growing in them, leave things alone! If you really must clean on a periodic basis then do your cleaning at about the time the young leave the nest. The parents should continue to feed and things will be halfway spruced up for the next clutch.

One might ask why the cage recommended is so large. The principle reason is the space needed for a pair and their young. In due course there will be five or six birds in the cage along with one or two nests. The nests do reduce the space available to the birds. In most cages that are commonly used, the space is adequate for one or two birds but when the young leave the nest, there are five or six birds. The hen often wants to nest before the young are weaned and the cock has the duty of feeding until the new clutch is hatched. By this time the young are robust and prepared to go by themselves. In smaller cages, the hen frequently plucks the young and they must be weaned prematurely. Should the cock be removed with them, there is a good chance that the eggs will be clear. There are more than enough infertile eggs in hybridizing without asking for them.

Although there is no guarantee that this size cage will cure the ills of bird breeding, it has been designed with many of them in mind and can be depended upon to reduce them to a minimum.

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